

**U. S. DEPARTMENT OF ENERGY
WORK BREAKDOWN STRUCTURE DICTIONARY
PART II - ELEMENT DEFINITION**

1. PROJECT TITLE/PARTICIPANT Environmental Management/Paducah Remediation Services, LLC (PRS)		2. DATE 06/29/07	3. IDENTIFICATION SITE Paducah Project DOE Portsmouth/Paducah Project Office (PPPO)
4. WBS ELEMENT CODE 04.11.10.04		5. WBS ELEMENT TITLE Out Year Pump-and-Treat Operations	
6. INDEX LINE NO. N/A	7. REVISION NO. AND AUTHORIZATION Rev. 0		8. DATE 06/29/07
9. APPROVED CHANGES N/A			
10. SYSTEM DESIGN DESCRIPTION N/A		11. BUDGET AND REPORTING NUMBER N/A	
12. ELEMENT TASK DESCRIPTION <p>THIS IS A PLANNING-LEVEL WBS DICTIONARY</p> <p><u>WBS STRUCTURE</u></p> <p>The scope of this element includes the following subelements:</p> <ul style="list-style-type: none"> • WBS 04.11.10.04.01 Plumes - Subproject Management • WBS 04.11.10.04.02 Plumes - O&M • WBS 04.11.10.04.03 Plumes - Unscheduled Maintenance • WBS 04.11.10.04.04 Plumes - Waste Disposal • WBS 04.11.10.04.05 Plumes - Extraction Well Rehabilitation <p><u>INTRODUCTION</u></p> <p>The Northwest and Northeast Plumes both contain trichloroethene (TCE). The Northwest Plume contains technetium-99 (Tc-99) contaminants. Additionally, Tc-99 recently has been detected in the Northeast Plume; this detection is considered a changed condition. Interim remedial actions were developed to mitigate and retard the spread of the highest contaminant concentrations of each plume. To implement these interim actions, two pump-and-treat facilities have been installed. The Northwest Interim Record of Decision (ROD) was signed in 1993, and the Northeast Interim ROD was signed in 1995. It is anticipated that the pump-and-treat systems, at a minimum, will remain in operation until a final dissolved-phase plume remedy is implemented.</p> <p><u>LOGIC RELATIONSHIPS</u></p> <p>Interfaces:</p> <p><u>Internal to Contractor</u></p> <ul style="list-style-type: none"> • All contractor project managers and staff • All subcontractors <p><u>External to Contractor</u></p> <ul style="list-style-type: none"> • U.S. Department of Energy (DOE) PPPO and support contractors • DOE Headquarters or other DOE Sites (if applicable) • U.S. Environmental Protection Agency (EPA) • Commonwealth of Kentucky (KY) • Site tenants including United States Enrichment Corporation (USEC); Uranium Disposition Services, LLC; and Swift & Staley Team (SST) • USEC services in the area of property, information technology, radios, etc. • SST, particularly in the areas of property management, information technology, and security. 			

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<ul style="list-style-type: none">• Nevada Test Site (NTS): Profiling and disposition of newly generated and classified and fissile low-level waste (LLW), if required or applicable.• EnergySolutions: Profiling, treatment, and disposition of mixed and LLW, if required or applicable.• Toxic Substances Control Act (TSCA) Incinerator, if required or applicable.• Commercial treatment, storage, or disposal (TSD) Facility: For treatment and disposal of non radioactive hazardous waste, if required or applicable.• Stakeholders• Citizens Advisory Board and supporting contractor Edward Holmes, Inc. (EHI).• DOE Integrated Safety Management System (ISMS) Verification Team• Other nonregulatory key interfaces		
Time Sequencing with Other Work: It is anticipated that the pump-and-treat systems will be operating continuously through fiscal year (FY) 2016. The operation of the systems will not require sequencing with other activities, although their operation will be coordinated with groundwater monitoring, Monitored Natural Attenuation (MNA) development, other groundwater environmental actions, and other Paducah Gaseous Diffusion Plant (PGDP) tenants (USEC and the infrastructure contractor). The Environmental Monitoring Group samples the monitoring wells associated with the two systems and Kentucky Pollutant Discharge Elimination System (KPDES) Outfall 001. Personnel from this program will interface with personnel operating the systems to ensure there are no conflicts. Labor costs associated with disposing future-generated treatment system consumables (e.g., ion exchange resin and activated carbon) and with sample collection are included in this WBS element.		
<u>SCOPE DESCRIPTION</u>		
WBS 04.11.10.04.01 Plumes - Subproject Management Provide overall management activities associated with this subproject. Activities performed under this subelement include the following: <ul style="list-style-type: none">• Perform technical, contractual, and project functions necessary to effectively manage and report scope, schedule, and budget.• Maintain all activities within the defined safety, environmental, and quality requirements.• Perform technical and personnel management functions.• Maintain technically qualified and properly trained personnel.• Develop, evaluate, and report project performance metrics.• Interface with DOE, KY, EPA, other prime contractors, and stakeholders, as needed. The method(s) used for determining earned value for this WBS element is Level of Effort.		
WBS 04.11.10.04.02 Plumes - O&M Operate the two existing groundwater pump-and-treat facilities at PGDP—the Northwest Plume Groundwater Containment System (NWPGS) and the Northeast Plume Containment System (NEPCS). Operation of the facilities represents an Interim Remedial Action (IRA) consistent with the ROD for the Northwest Plume (reference: DOE/OR/06-1143&D4, July 1993) and Northeast Plume (reference: DOE/OR/06-1356&D2, June 1995). The purpose of the IRA is to recover and treat contaminated groundwater to control the highly concentrated cores of the respective plumes until regulatory approval is obtained to cease operations. The NWPGS consists of four groundwater extraction wells. Groundwater is treated by air stripping and ion exchange. Off-gas from the air stripper is treated by vapor phase carbon. Operation of the facility will be consistent with the approved Operation and Maintenance (O&M) Plan (NWPGS Plan, DOE/OR/07-1253&D4). The NEPCS consists of two extraction wells and treatment by air stripping. Operation of the facility will be		

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<p>consistent with the approved O&M Plan (NEPCS Plan, DOE/OR/07-1535&D3). Generally, the routine O&M consists of the following:</p> <ul style="list-style-type: none">• Monitoring operations,• Collecting operational and analytical data,• Maintaining operating procedures and plans,• Developing input to the Semiannual Federal Facility Agreement (FFA) Progress Report,• Submittal of the monthly water withdrawal report,• Replacement of spent filter carbon,• Extraction well inspections, and• Replacement of spent ion exchange resin.• Decommissioning of NWPGS and NEPCS in FY 2017 <p>The method(s) used for determining earned value for this WBS element is Level of Effort.</p> <p>WBS 04.11.10.04.03 Plumes - Unscheduled Maintenance Repair and replace system and facility components.</p> <p>The method(s) used for determining earned value for this WBS element is Level of Effort.</p> <p>WBS 04.11.10.04.04 Plumes - Waste Disposition Proper disposition of all waste generated as a result of pump-and-treat operations, including</p> <ul style="list-style-type: none">• Spent filter carbon,• Spent ion exchange resin,• Used PPE,• Spent lubricants, and• Other operational debris such as sample bottles and used parts. <p>The method(s) used for determining earned value for this WBS element is Percent Complete.</p> <p>WBS 04.11.10.04.05 Plumes - Extraction Well Rehabilitation</p> <ul style="list-style-type: none">• Rehabilitate extraction well bores. <p>The method(s) used for determining earned value for this WBS element is Percent Complete.</p> <p><u>DELIVERABLES</u></p> <p>WBS 04.11.10.04.01 Plumes - Subproject Management <u>Element Milestones</u></p> <ul style="list-style-type: none">• None <p><u>Element Deliverables</u></p> <ul style="list-style-type: none">• Paducah Contractor Quality Assurance (QA) Project Plan• Paducah Contractor environmental, safety, and health (ES&H) Plan• Provide input to the following reports and submittals (if applicable):<ul style="list-style-type: none">○ Monthly Project Performance Report○ Risk Management Plan Updates○ Site Management Plan (SMP)○ SWMU Assessment Report○ Semiannual Critical Analysis Report		

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<ul style="list-style-type: none">○ Presentations○ FFA briefings○ Labor determinations○ Gold Chart Performance Metrics○ Annual updates to Site Treatment Plan○ Annual Compliance Agreement Report○ Annual ISMS Update○ Annual Work Smart Standards Update○ Financial Reporting, Management Analysis Reporting System○ Annual Statement of Costs Incurred and Claimed○ Monthly Commitment Reports○ FFA Semiannual Progress Report○ Remedial Action/Regulatory Commitment Tracking Report○ Other reports/documents, as necessary		
WBS 04.11.10.04.02 Plumes – O&M <u>Element Milestones</u> <ul style="list-style-type: none">• None <u>Element Deliverables</u> <ul style="list-style-type: none">• Modifications to the O&M Plans will be prepared on an as-needed basis. Any changes to operation parameters or the system configuration will be made as needed.• Monthly water withdrawal reports for the NWPGS will be submitted electronically to the Division of Water using the Division’s Radius software.• Final Remediation Report		
WBS 04.11.10.04.03 Plumes - Unscheduled Maintenance <u>Element Milestones</u> <ul style="list-style-type: none">• None <u>Element Deliverables</u> <ul style="list-style-type: none">• None		
WBS 04.11.10.04.04 Plumes - Waste Disposition <u>Element Milestones</u> <ul style="list-style-type: none">• None <u>Element Deliverables</u> <ul style="list-style-type: none">• Completed requests for disposal.		
WBS 04.11.10.04.05 Plumes - Extraction Well Rehabilitation <u>Element Milestones</u> <ul style="list-style-type: none">• None <u>Element Deliverables</u> <ul style="list-style-type: none">• None		
<u>REQUIREMENTS</u>		

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- CERCLA/National Contingency Plan
- KY Hazardous Waste Permit (KY8-890-008-982)
- FFA for the PGDP
- SMP for the PGDP (annual revisions)
- Applicable state and federal laws and regulations (applicable or relevant and appropriate requirements)
- Contractor ISMS
- UEO-1066, as updated, Lease Agreement between DOE and USEC, Revision 4, dated October 30, 2001
- Enclosure to GDP 95-0018, as updated, USEC and DOE Resolution of Shared Site Issues, Revision 1 dated March 30, 1998
- Applicable contractor plans, policies, and procedures
- Waste acceptance criteria for all applicable treatment and disposal facilities that were in effect on April 24, 2006
- Applicable DOE Orders
- Applicable Federal Acquisition Regulations

It is the core value of the Contractor that the safety and health of every worker, the public at large, and our environment are the most important assets that we are entrusted to protect. To accomplish this, an ISMS, based on DOE's ISMS, has been implemented that incorporates the five core functions and is based on the seven guiding principles. The objective of ISMS is to systematically integrate safety and environmental protection into the planning and execution of all work activities. The term safety encompasses Nuclear Safety, Industrial Safety, Industrial Hygiene, Occupational Health, Health Physics, and environmental issues. ISMS requirements flow down to Contractor's subcontractors. The five core functions are (1) define the scope of work, (2) analyze hazards, (3) develop and implement hazard controls, (4) perform work within controls, and (5) provide feedback and continuous improvement. The seven guiding principles are (1) line management responsibility for safety, (2) clear roles and responsibilities, (3) competence commensurate with responsibility, (4) balanced priorities, (5) identification of safety standards and requirements, (6) hazard control tailored to work being performed, and (7) operations authorization.

Before a subproject begins, several activities must be completed that demonstrate that all involved in the project have completed rigorous health and safety reviews and that all potential hazards of doing the work have been identified. The routine activities in remedial actions are conducted in accordance with standard operating procedures, activity hazard analyses, and Integrated Safety Management plans. Nonroutine work will require a readiness assessment, as necessary, to ensure complete health, safety, and environmental reviews prior to work start. This assessment is conducted by people experienced in similar kinds of work with the right to examine all aspects of a project about to commence and requires that the project team provide documented evidence that any applicable requirements of the job have been met.

SCOPE ASSUMPTIONS

- Detection of Tc-99 does not necessitate the permanent shutdown of the NEPCS; modifications to the treatment systems; a change in the O&M Plan or procedures; or increased monitoring or analysis.
- The NEPCS and the NWPGS will remain in operation until through 2016.
- Procurement and contract management is in Project Support Baseline.
- Sampling and analytical requirements will not increase.

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COMPLETION CRITERIA

WBS 04.11.10.04.01 Plumes - Subproject Management

- Completion of all technical and reporting requirements for source control.

WBS 04.11.10.04.02 Plumes – O&M

- The completion of this WBS element either will be the shutdown of the pump-and-treat facilities or successful continued operation for the duration of the contract.

WBS 04.11.10.04.03 Plumes - Unscheduled Maintenance

- Completion of repairs of faulty system and facility components

WBS 04.11.10.04.04 Plumes - Waste Disposition

- Completion of carbon/resin change-out; completion of request for disposal.

WBS 04.11.10.04.05 Plumes - Extraction Well Rehabilitation

- Completion of the rehabilitation of extraction well bores as needed.

RISK MANAGEMENT

See Risk Management Plan for analysis

Risk was mitigated through the following efforts:

- Continue to perform due diligence in all work activities to reduce the possibility of safety incidents.
- Perform due diligence to ensure that waste is properly packaged and that transportation conveyances are properly loaded.
- Follow waste characterization, packaging, transportation, and disposition procedures and plans.
- Ensure that documents are written professionally and accurately.
- Ensure that fieldwork is carried out safely and in accordance with work instructions.
- DQOs will have qualitative and quantitative statements derived from the DQO Process that clarify study objectives, define the appropriate type of data, and specify the tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions and process knowledge.
- Ensure QA/QC procedures address potential system and equipment failures.
- Subcontractor will follow ALARA principles and approved decontamination procedures.

CERCLA AREAS AND SWMU

None.

BASIS OF ESTIMATE

1. Summary of Site Conditions

The NWPGS and the NEPCS currently are operational facilities. It is anticipated the two pump-and-treat facilities will continue to operate at least through FY 2016.

2. Estimating Methods

☐ Parametric ☐ Bottom Up ☒ Other: Revised & Updated Existing

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<p>3. Sources of Estimating</p> <p>Labor – Project team meetings were utilized to review the current estimate and identify staff types to be used for activities associated with this effort.</p> <p>Materials – Materials for unscheduled maintenance and O&M was based on the past history of the project. Cost for resin and carbon changes was based on previous experience.</p> <p>Other Direct Cost – Same as materials.</p> <p>Transportation – N/A.</p> <p>Subcontracts – Experience from technical staff provided requirements for the involvement of subcontracts and, where appropriate, subcontract unit rates (contract rates) were used.</p> <p>4. Basis of Estimate (Unescalated Values) See Detail Estimate.</p> <p><u>Waste Volumes</u></p> <p>See attached waste performance metrics, as applicable.</p> <p><u>PROJECT SCHEDULE</u></p> <p>See attached schedule.</p> <p><u>BASELINE BY YEAR</u></p> <p>See attached Baseline by Year Report.</p>		